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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

May 19, 1995

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Washington, D. C. 20554

Dear Mr. Caton,

Re: Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, CC Docket No. 95-20

Pursuant to the Notice of Proposed Rulemaking in CC Docket No. 95-20, In the Matter of Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services and the order of the Chief, Policy and Program Planning Division of the Common Carrier Bureau, released April 25, 1995 (DA 95-908), extending the time for filing reply comments to May 19, 1995, please find enclosed an original and six copies of Reply Comments of Bell Communications Research, Inc. in the above proceeding.

Please stamp and return one copy to confirm your receipt. Please communicate with me, or with Mr. Joel Ader of our Washington, D. C. offices should you have any questions concerning this matter. Thank you.

Sincerely,

M. S. Slomin

Enclosures

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

In the Matter of	)	
	)	
Computer III Further Remand	)	CC Docket No. 95-20
Proceedings: Bell Operating	)	
Company Provision of Enhanced	)	
Services	)	

REPLY COMMENTS OF BELL COMMUNICATIONS RESEARCH, INC.

Bell Communications Research, Inc. ("Bellcore") hereby files reply comments in this proceeding, for the purpose of responding to comments of MCI Telecommunications Corporation ("MCI") regarding Bellcore's role in standards bodies and forums and Bellcore's processes.[1]

Introduction

The MCI comments and Guggina affidavit make a number of unsupported and incorrect allegations that Bell Operating Companies ("BOCs") can impede the development of enhanced services through a so-called "dominance" of standards and forum processes, and through abuse of the Bellcore generic requirements process. It is suggested that Bellcore is a party to this because Bellcore participates in such bodies on behalf of its clients, although the condemnation of Bellcore is not completely clear.

For example, MCI makes a series of allegations of undesirable conduct by RBOCs in the Information Industry Liaison Committee ("IILC"), and in particular its addressing of IILC Issue

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[1] Comments of MCI Telecommunications Corporation, Apr. 10, 1995 (hereafter, "MCI comments") at 31-34 and Affidavit of Peter P. Guggina appended thereto (hereafter, "Guggina affidavit").

#026, Guggina affidavit, 4-9. Other than in the heading of this discussion ("The RBOCs and Bellcore" on 4) and a glancing mention ("standards and Bellcore processes" on 5), there is no reference to Bellcore in this discussion. Similarly, it is unclear whether MCI is attacking the Bell Operating Companies alone, or these companies and Bellcore, when it claims (without basis) that the Bellcore requirements process is subject to abuse by RBOCs, Guggina affidavit at 20-22. [2] [3]

What is clear is that MCI is seeking to paint a picture of misconduct, regardless of its relationship to the issues of this proceeding.[4] To do so, it has mischaracterized the deliberative and decisional processes used by open industry standards bodies and forums in which MCI is an active participant. It has condemned standards bodies, forums and Bellcore's generic

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[2] This is the second time that MCI and its affiant, Mr. Guggina, have made baseless allegations of this nature. Mr. Guggina's October, 1990 affidavit filed with the MFJ Court was responded to fully in the reply affidavit of Casimir S. Skrzypczak, filed with the MFJ Court in January, 1991, and included in Appendix B of this filing. Mr. Skrzypczak was at that time Vice President, Science and Technology, of NYNEX Corporation, and he had previously served as Vice President, Network Planning, of Bellcore. Mr. Guggina's allegations were baseless then, and do not acquire any different status by repetition some four years later. Rather than repeating the 1991 response, we are appending it to this Reply. Furthermore, MCI fails to acknowledge that there have been significant changes in the industry and improvements to the industry processes to reflect those changes. The former Exchange Carriers Standards Association ("ECSA"), the sponsor of the standards bodies and forums MCI is addressing, has been renamed the Alliance for Telecommunications Industry Solutions, Inc. ("ATIS"). It has concomitantly opened its Board and its Advisory Committee to full membership and participation by interexchange carriers and other telecommunications service providers who own transport or switch facilities (its working groups and committees were open to such membership and participation from their inception). Indeed, Mr. Guggina is a member of the ATIS Board.

[3] As the Commission is aware, it was announced on April 13, 1995 that Bellcore's owners have decided to pursue the disposition of their ownership interests in Bellcore. Although Bellcore has been engaged in no wrongdoing under its present ownership, in the event of a sale the possibilities for engaging in wrongdoing would be lessened even more, contrary to the suggestion of Mr. Guggina, Guggina affidavit at 8, n. 5.

[4] In this regard, Mr. Guggina makes allegations about Signaling System 7 capabilities, 555 access arrangements, abbreviated dialing, telecommunications fraud, arrangements for international interconnection, alleged dominance of standards bodies, and Bellcore generic standards processes, all of which relate to basic services, not enhanced services.

requirements processes as too slow, and it has told part stories to convey an impression of wrongdoing.[5] In fact, it is the opportunities for participation in these industry groups by MCI and others that slows their decisionmaking. In the remainder of this filing, and in the appended 1991 Skrzypczak affidavit, we tell the rest of the story.

Standards Bodies

Standards bodies and forums adopt voluntary standards and technical approaches. They may be persuasive (usually because they have achieved broad acceptance and/or because of technical excellence), but they are not binding. Individual equipment vendors, users and service providers can make standards effective, and have the ability to implement a proposed standard even before it has been made formal or broadly accepted. However, it should be noted that implementation and purchasing decisions are made by vendors, users and service providers individually, and they can ignore a standard and implement alternatives of their own choosing. Thus, MCI misperceives these bodies when it asserts that the forums and standards process can be used to stall developments and implementations.

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[5] Two examples of this attack by innuendo and half-truth illustrate the approach that MCI is utilizing. First, while MCI observes that the Commission found an Ameritech NPA overlay plan for Chicago unreasonable, MCI comments at 34, MCI fails to acknowledge that Bellcore as administrator of the North American Numbering Plan did not support the Ameritech plan, neither in its dealings with Ameritech nor in regulatory filings. And second, while MCI claims that it was thwarted in its desire to receive a CIC delivery mechanism (Guggina affidavit, 11-13), it fails to acknowledge that the particular mechanism it was seeking would have been costly and inefficient to implement, that Bellcore analyzed and explained the technical issues in the very forums that MCI characterizes as unresponsive, and that this enabled MCI and others to develop the more workable CIP approach in these forums. This is discussed in detail *infra*.

It is correct that Bellcore participates in a variety of standards bodies and forums (as does MCI), but it is unfair to suggest that Bellcore's commitment of personnel and resources to the activities of these groups is nefarious, or that participants seek delay. For more than a decade, Bellcore has sought to bring its expertise to bear on technical issues that would have been resolved largely within the pre-divestiture Bell System or by regulatory bodies, but that now are appropriately resolved informally by the affected industry.

Yes, the consensus and committee processes for reaching decisions can be time-consuming, as all participants in the industry are aware. This is an effect of the democratic consensus processes that are employed, not their goal. It is generally considered undesirable to dispense with such democracy in the name of more expeditious decisionmaking. Indeed, MCI would probably be the first to protest curtailment of an opportunity for it to participate. Bellcore and others in the industry are committed to improving and reengineering these processes where possible, but without sacrificing the openness and due process associated with them, and one body, the Carrier Liaison Committee (to which a number of forums report) is currently considering an MCI proposal to do so.

The standards bodies and forums that Mr. Guggina refers to are open.[6] They give notice of meetings, they allow participation by and accept proposals from anyone interested in the subject matter, they discuss such proposals publicly, and they seek to reach consensus. In some bodies, Bellcore has had a single vote; in others it does not vote at all. Parties are persuasive because they are competent, not because they can unfairly control results.

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[6] Even the forum that addresses toll fraud is open to participation by interested industry members. Its deliberations are, for obvious reasons, not open to the public.

Those bodies that are accredited by the American National Standards Institute ("ANSI") such as Committee T1, utilize formal procedures to reach decisions. Under the ANSI procedures, T1 is divided into four interest categories – users/general interest, manufacturers, interexchange carriers, and exchange carriers. Each interest group's standards ballot results are reported to ANSI separately, in the interest of demonstrating that no interest group dominated the result or was disadvantaged by it. Exchange carriers cannot "dominate" a result under such voting. Moreover, even if a proposed standard has achieved consensus in one or more of the interest categories without objection from another such category, there are appellate procedures available to a non-participant in the consensus.[7]

Mr. Guggina seems to be condemning Bellcore and the Bell Operating Companies because they have been willing to participate meaningfully in the technical activities of standards bodies.[8] Both his factual assertions and the innuendo that meaningful participation represents unfair "dominance" are incorrect. Bellcore and the Bell Operating Companies do not numerically dominate the membership of these bodies.[9] While Bellcore and Bell Operating Company

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[7] MCI does not allege wrongdoing by Bellcore in the IILC (which is a forum, not a standards body), nor can they since Bellcore does not even vote in that body. Nevertheless, we would note that while forums such as the IILC do not use the ANSI formal procedures, they too strive to reach consensus. Also, the results of forums such as the IILC, the Ordering and Billing Forum, the Industry Carrier Compatibility Forum and the Network Reliability Council, can be pursued in the regulatory process (*e.g.*, tariff proceedings) where they can be challenged.

[8] If they failed to do so, MCI would probably be condemning them for failing to cooperate in informal resolution of issues.

[9] Based on January, 1995 membership data, Committee T1's voting members were divided among the interest groups as follows: users/general interest (21%), manufacturers (45%), interexchange carriers (11%), and exchange carriers (23%). Bellcore, which has one vote, is included in the exchange carrier group. Even without the requirement that each interest group's ballot results be reported separately in a proposed standard, the exchange carrier group could not dominate the result.

personnel have been elected to many leadership positions, they cannot and would not misuse them. Any attempt to do so would instantly be detected by the participants, and could be corrected via the governance procedures of the body or voting (since leaders are elected).[10]

Carrier Identification Capability

Mr. Guggina refers to a request for a carrier identification code ("CIC") delivery mechanism and purports to summarize the disposition of that request by various bodies. While it is correct that this issue took time to reach resolution, rather than being an indicator of wrongdoing (as MCI suggests), it shows that the process can work.[11] [12]

In the 1987-88 timeframe, MCI sought the passing of the CIC to an interexchange carrier ("IXC") in the Signaling System No. 7 ("SS7") call setup message. MCI initially asked that local exchange carriers pass a Transit Network Selection ("TNS") parameter, which contains the CIC along with other information, to the IXC on domestic calls as an orderable option, in addition to passing it on international calls. The technical considerations involved were complex. In reality, the TNS approach advocated by MCI was inefficient and not readily implemented.[13] An alternate

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[10] The various leadership positions are demanding, and require a strong commitment to the work. That Bellcore and Bell Operating Company personnel hold a larger number of leadership positions than interexchange carrier personnel perhaps reflects the willingness of their respective organizations to underwrite this work. However, the relative proportions of leadership positions held by exchange and interexchange carrier personnel are comparable to the percentages of voting members in each such interest group, and are therefore not disproportionate.

[11] Mr. Guggina is alleging that it is the Regional Bell Operating Companies that used forums and the standards process to stall development of the requested CIC passing, not Bellcore, Guggina affidavit at 9-13. Nevertheless, since Mr. Guggina refers in his discussion to the SS7 interface specifications in Bellcore generic requirements, *Id.* at 11, we are responding to this allegation.

[12] While MCI may have explored a CIC delivery mechanism in 1987, it expressed little interest in purchasing such a capability then.

[13] See Appendix A for a detailed discussion of this.

solution to the request for CIC information as part of SS7 call setup was formulated, namely, to use a proposed new parameter, the Carrier Identification Parameter ("CIP"). Thus, it is not surprising that the matter was considered for some time.

Mr. Guggina suggests that Bell Operating Companies pursued the CIP approach rather than MCI's TNS approach to make the capability more complex to implement, Guggina affidavit at 12. This is incorrect. The CIP approach was pursued because it was a technically better approach, and its implementation would be less disruptive. Because of the potential impacts and changes to switches and procedures involved in passing the TNS parameter to IXCs, it was concluded that defining a new parameter to carry the CIC information to the IXCs would be simpler. By defining a new parameter specifically for providing CIC information to carriers, the parameter could be tailored to the need (*i.e.*, provide only needed CIC information), and procedures associated with it could be straightforward. [14]

With consensus achieved on the CIP approach, the detailed procedures and requirements needed to enable suppliers to develop the capabilities and exchange carriers to implement it could be developed. By mid-1991, the applicable Bellcore generic requirement, TA-394, was modified to include CIP – even though the revised T1S1.3 standard including CIP had not yet completed the T1 and ANSI approval processes – and in 1992 the Bellcore generic requirements addressing the ISDN User Part ("ISUP") had similarly been modified to include CIP. [15]

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[14] *Id.*

[15] So ended Bellcore's involvement in this issue. Whether any modifications are implemented or services made available is a business decision made by the service providers, their customers and their suppliers.

In summary, the process worked. Although MCI's proposal was technically undesirable, an approach was developed to satisfy its needs in a less disruptive fashion. Bellcore contributed positively to this by analyzing the complex technical and operational issues involved, which enabled development of the CIP approach, and in developing appropriate generic requirements without waiting for the formal standards including the revision to be approved.

Generic Requirements

Bellcore's generic requirements process provides manufacturers and service providers with Bellcore's view of proposed generic requirements and objectives concerning network equipment, network interfaces, performance and quality criteria, and a host of related technical subjects of possible use to its clients in provisioning and operating their networks. The outputs of this process are series of Generic Requirements ("GRs").[16] GRs can complement standards by providing specification details, selecting among options, providing for additional features, supplying needed support information, and focusing on the environments of their users (rather than more general cases addressed in standards). GRs may also be used to trigger and precede the standards process in areas where standards have not been fashioned.

Bellcore's equipment-related GRs support the respective procurement processes of Bellcore's clients, but each client is free to adopt, modify, supplement or ignore any Bellcore GR. GRs have no binding effect, though they may be useful and therefore used by many companies. Also, although Bellcore seeks to utilize and rely on standards where possible, there can be no

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[16] As will be discussed, proposed changes are managed through the use of an Issues List Report ("ILR"), which can be released with the initial GR-CORE document release or thereafter.

assurance that standards will always be incorporated in a given GR, or in procurement specifications of one or more Bellcore clients, because compliance with standards and consensus achieved in forums is voluntary.[17]

The current process is the result of reengineering during the past year of the Technical Advisory/Technical Reference process described at pages 15-17 of the attached Skrzypczak affidavit. Interested industry members are invited to participate in the early development stages of proposed generic requirements or their extensive revision, through public notices appearing in the monthly Bellcore *DIGEST of Technical Information* and in Bellcore's "Home Page" on the World Wide Web (Internet). Such participation (called "early industry interaction") is open to all interested parties, including manufacturers, service providers, and users.

The interactions are intended to explore critical technical issues, explain and clarify potential text, and stimulate comment. Issues raised but not resolved during the early industry interaction phase will be incorporated in an Issues List Report that can accompany the initial GR-CORE document as it is released, or it can be released subsequently as more issues, proposals or resolutions are collected and reported.[18] The GR process goal is to develop and release proposed

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[17] Guggina affidavit, 21.

[18] While all input is considered, there can be no commitment that all input or industry comments will be accommodated or addressed in generic requirements. Contrary to MCI's suggestion, generic requirements are not a "private standards setting process," Guggina affidavit at 22. They are proposed by Bellcore for others to use or adapt to their specific circumstances and needs, and tend to be more focused than standards. Bellcore and its clients employ procedures such as public announcements of early industry interactions, solicitation of comments and the Issues Lists voluntarily because it is in their interest to do so. They believe that use of such procedures can improve the quality and utility of Bellcore's published views, and that this approach is consistent with Bellcore's mission to enable an open, interoperable network infrastructure. It is always easier to highlight and avoid potential problems at the outset than to "fix" them later, and this is particularly true when dealing with complex technical issues and technologies.

generic requirements that can be implemented more quickly and easily than was the case using the earlier process.

Conclusion

Accordingly, and for the reasons provided in the foregoing Reply Comments, Bellcore respectfully requests that the Commission recognize that Bellcore's activities are procompetitive and efficiency-enhancing, and that the Commission ignore any suggestions to the contrary.

Respectfully submitted,

BELL COMMUNICATIONS RESEARCH, INC.

by: 
Michael S. Slomin

Its Attorney

May 19, 1995

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Bell Communications Research, Inc.
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Livingston, New Jersey 07039
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THE TNS PARAMETER AND CIP

The Transit Network Selection ("TNS") parameter which MCI was seeking is the SS7 equivalent of information in Multi-Frequency (MF) signaling and the procedures for its use are identical to those in MF signaling. It is used for routing of the call. The TNS parameter contains the XXX (or XXXX) code of the carrier, i.e., the CIC, to which the call is to be routed and the specification of the class of traffic type for the SS7-equipped access tandem to use to route to the interexchange carrier (IXC), *i.e.*, the SS7 equivalent of the 0ZZ in MF signaling.

The TNS parameter is always sent from the End Office (EO) to the access tandem in the IAM, but it is not sent in the IAM to the IXC for domestic calls. For international calls, the TNS parameter is sent to the IXC both on connections through an access tandem and on direct EO connections. However, in the international case, the TNS parameter is coded differently: it indicates whether an operator is requested for the international call (*i.e.*, it contains the SS7 equivalent of the MF signaling 1NX and 1N'X). These procedures mirror what occurs in MF signaling.

MCI's approach would have required several significant changes beyond just "modifying an existing signaling element," Guggina affidavit at 12. First, it would have required modifications in the SS7 call setup procedures in every EO switch to include the TNS parameter on all calls that use a direct trunk to an IXC. This is not just a simple change to include another, already defined parameter, but rather represents a basic change to call processing logic in the switch that was specifically designed to match the MFJ equal access signaling procedures.

Second, this would require changes to the access tandems; access tandems pass the TNS parameter to the IXC only on international calls. To include it on domestic calls represents a change to the access tandem procedures. It might require additional processing at the access tandem, and it would be inconsistent with the MF procedures. Thus, clarification would be needed on the treatment of fields such as the 0ZZ code when TNS is used for passing information to an IXC instead of only routing to access. And third, to make this an orderable option, as requested by MCI, would add complexity to the administration and provision of interconnection to IXCs, at both EOs and access tandems.

Contrary to Mr. Guggina's suggestion, it did not take seven years for the standards issues to be resolved. MCI first suggested the TNS approach informally in 1987, and made a contribution formally proposing this to the T1S1.3 committee in July, 1988. The participants did not agree with MCI's proposal. MCI resubmitted the contribution in March, 1989, at which time general objections were voiced. Bellcore submitted a contribution in May, 1989 analyzing the technical concerns raised by MCI's approach. The consensus of the participants at the meeting was that TNS should not be used, and that a separate parameter should be defined. At the September, 1989 meeting T1S1.3 agreed to include CIP in the next formal release of the interface standard. Thus, from the time of MCI's formal proposal to its resolution by the standards body, 14 months elapsed.

AFFIDAVIT

State of New Jersey)
) ss:
County of Monmouth)

Joan T. LaBanca, being duly sworn and under oath, hereby deposes and says:

1. I am General Manager, Core Networks for Bell Communications Research, Inc. ("Bellcore"), with supervisory responsibility over participation by Bellcore personnel in standards bodies and industry forums, and Bellcore generic requirements activities;
2. I have read the foregoing Reply Comments of Bell Communications Research, Inc. and Appendix A thereto, and reviewed the factual statements therein contained with personnel and files in my organization; and
3. To the best of my information, knowledge and belief, these statements are correct.

Joan T LaBanca
Joan T. LaBanca

Subscribed and sworn to before me this 18th day of May, 1995.

Joan M. Schoellner

NOTARY PUBLIC

JOAN M. SCHOELLNER
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires June 3, 1997

My Commission expires _____ (SEAL)

APPENDIX B

AFFIDAVIT OF CASIMIR S. SKRZYPCZAK

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, Plaintiff v. WESTERN ELECTRIC COMPANY INC. AND AMERICAN TELEPHONE AND TELEGRAPH COMPANY, Defendants.	Civil Action No. 82-0192 REPLY AFFIDAVIT

STATE OF NEW YORK)
COUNTY OF WESTCHESTER) ss.:

Casimir S. Skrzypczak, being duly sworn, deposes and says:

1. I am Vice President - Science and Technology of NYNEX Corporation ("NYNEX"), responsible for the development of advanced technologies, applied research, and technology strategies for the NYNEX companies. I submit this affidavit in response to certain erroneous allegations concerning the standards process (e.g., as contained in the affidavit of Peter Guggina submitted by MCI) and additional erroneous allegations concerning the relationship between the Public Switched Network and the provision of information services (e.g., as contained in the brief of the Ad Hoc Telecommunications Users Committee and the attached Report of Lee Selwyn).

2. Since assuming my present position in September, 1985, my responsibilities have included the development and review of technology plans, including long-range technology plans, for NYNEX companies. These plans involve, but are not limited to, consideration of network architectures and appropriate technical standards and interfaces.

3. Prior to assuming my present position, I was Vice President - Network Planning of Bell Communications Research, Inc. ("Bellcore"), from January, 1983 through August, 1985. In that position, I was responsible for assisting the Regional Bell Operating Companies ("RBOCs") in Network Planning. In that capacity, I provided technical advice and assistance to the RBOCs in the planning and implementation of RBOC network services and network architectures, and advised the RBOCs concerning proposed technical standards.

4. From December of 1979 through December of 1982 I served as Director - Fundamental Network Planning of AT&T. In that position I was responsible for long-term planning for the evolution of the nationwide telecommunications network, and producing and developing planning guidelines, methodologies and computerized aids for use by BOC planners. I also served as the Network Department interface with the Independent Telephone Companies through my contacts with the United States Independent Telephone Association ("USITA"). In this capacity, I was AT&T's

liaison with USITA's Network Planning Subcommittee of its Engineering Committee, and with USITA's Equipment Compatibility Committee. USITA's Equipment Compatibility and Engineering Committees brought manufacturers and independent telephone companies together in a forum where questions on standards and interfaces could be addressed.* Prior to the AT&T assignments, I held a variety of network planning, engineering, operations and administrative positions in New York Telephone from 1967 through November, 1979.

5. In my present position, I am responsible for the development and review of NYNEX's technology plans, including the application of such plans to NYNEX's long-range network architecture plans. I am also responsible for evaluating, for possible use by NYNEX, the latest technologies available from vendors. This responsibility involves joint participation in research activities with universities, vendors, and others.

6. In addition to being responsible for NYNEX's corporate positions on standards, I am presently Chairman of the Exchange Carriers Standards Association ("ECSA") Board of Directors.

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* USITA has evolved into two separate organizations, the United States Telephone Association and the United States Telecommunications Suppliers Association ("USTSA"). USTSA has since merged with a portion of the Electronic Industries Association to form the Telecommunications Industry Association.

ECSA provides administrative support to the T1 Committee* and helps ensure T1's conformance to American National Standards Institute ("ANSI") accreditation requirements.** The work of ANSI and the T1 Committee is described in paragraphs 11-19, infra. I have testified on matters relating to standards on several occasions during the AT&T antitrust case, and submitted an affidavit relating to standards matters during the 1987 Triennial Review proceeding. The 1987 affidavit addresses some of the same matters discussed in this affidavit.

7. One purpose of this affidavit is to describe the process by which standards are established, both in the United States and internationally. This description will demonstrate that the allegations about RBOC abuse of the standards process

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* In addition to its T1 support, ECSA sponsors the Carrier Liaison Committee (CLC) and the Information Industry Liaison Committee (IILC).

** ECSA and T1 are very careful to comply with ANSI due process rules. For example, ECSA has a Standards Advisory Committee ("SAC") which has responsibility to audit T1 to insure that ANSI guidelines are followed. In 1988, when I was Chairman of SAC, I commissioned an audit for that purpose. The audit team examined T1's records, and no violations of ANSI rules were discovered. Also, ANSI itself audits T1. The most recent audit results, from November 1989, indicate that "Committee T1 and its Secretariat are complying with all critical ANSI criteria for accreditation and confirm that their procedures and practices are consistent with those that formed the basis for accreditation."

are wrong, and that no RBOC can conceivably control, or even unduly influence, the standards setting process.*

8. No entity or group can control the standards making process. The rapid development of new technologies, the globalization of telecommunications markets, and the divestiture of the BOCs from AT&T have created a new standards setting environment in which cooperation among manufacturers, interexchange carriers, local exchange carriers and users is absolutely essential. Any attempt by an RBOC to impede competition by creating a proprietary network architecture would, in my opinion, be self-destructive.

9. There are three substantial forces that make it impossible for any RBOC to control or unduly influence the international or national standard setting process. These three forces are: (1) the international and accredited national standards bodies, which operate by consensus of all industry members and in which the RBOCs, even as a group, have only a small minority of the votes; (2) customer representation in standards bodies and customer demand for services and equipment which interconnect transparently with the services and equipment of other suppliers; and (3) federal and state government

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* This affidavit will also address the relationship between the Public Switched Network and the provision of information services (see ¶¶ 28-43, infra).

requirements for interconnection and compatibility, such as the "equal access" required by the Modification of Final Judgment, "open network architecture" and "comparably efficient interconnection" as required by the FCC, and the FCC's CPE registration program. This affidavit will primarily address the first two factors.

10. Telecommunications standards are increasingly set on a global level. The International Telegraph and Telephone Consultative Committee ("CCITT"), an organization of government representatives operating under treaty, and the International Organization for Standardization ("ISO"), a voluntary, non-treaty organization of the principal standards organizations in member countries, have cooperated to set forth the major end-to-end architectural components of telephone and information processing networks and systems. In particular, CCITT conducts important global standards work for both the Intelligent Network and the Integrated Services Digital Network ("ISDN"). ISDN is the future access network which promises to provide more powerful, versatile and manageable communications services. These standards are at the heart of present and future telecommunications systems.

11. The work of CCITT and ISO cannot be controlled or dominated by any one interest, certainly not by the RBOCs, which have no votes in either organization. In CCITT, for example,

the United States, through the State Department, has only one of 166 votes. Furthermore, United States positions and contributions to CCITT are not determined by any one company but are discussed and approved at State Department meetings which are open to any interested party. Similarly, ANSI represents United States interests in ISO, and no RBOC is a member of ISO. Not even the pre-divestiture Bell System could dictate standards to such international standards organizations. As one clear example, in the 1960s the Bell System took the initiative in technological development of T1 digital carrier systems,* equipping them with channels that have 56 kbps usable capacity. It urged that the 56 kbps rate be standardized on an international basis. Despite those urgings, and despite the actual deployment of the AT&T design in the North American network, CCITT adopted a dual standard which included a "64 kbps clear" rate, now prevalent throughout the world except in North America and Japan. As a result of the need to efficiently connect the North American network to the rest of the world, the "64 kbps clear" standard is being implemented in this country.

12. Another example of the Bell System's inability to impose its will on the international standards community occurred in the 1970s. AT&T developed a new signaling system which it called Common Channel Interoffice Signaling ("CCIS").

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* The T1 digital carrier is a transmission system consisting of 24 separate channels.

However, the CCITT recommendation, while accommodating CCIS, in fact supported another signaling system called Signaling System 6. It was not until the 1980s that CCITT adopted an international standard evolving from both CCIS and SS6 which was designated Signaling System 7. In fact, conformance to the due process requirements is a basis on which ANSI provides accreditation to a standards-making organization and provides final approval for the standards developed by that organization.

13. In the United States, standards-making activities are carried on by organizations with broad-based memberships. These organizations utilize procedures which follow the elaborate ANSI due process requirements. ANSI is a non-profit organization which serves as a national clearing house for voluntary standards.

14. Telecommunications standards-setting within the United States is conducted by many organizations. The T1 Committee, sponsored* by ECSA, is among the most active. T1 is an ANSI-accredited, FCC-endorsed national standards-setting organization. Other important telecommunications standards

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* Under ANSI rules, the role of a sponsor is to provide administrative support and to help ensure that ANSI due process procedures are followed. Sponsorship of T1 by ECSA or of X3 by the Computer and Business Equipment Manufacturers Association ("CBEMA") does not imply that ECSA has undue influence over T1 or that CBEMA has undue influence over X3.

groups in the United States include, for example, the X3 Committee, which deals with, among other things, computer and information processing standards and is sponsored by the Computer and Business Equipment Manufacturers Association ("CBEMA"); the 802 Committee sponsored by the Institute of Electrical and Electronics Engineers ("IEEE"), which is actively developing standards with respect to, among other things, local area networks; and the TR41 Committee sponsored by the Telecommunications Industry Association ("TIA"), which sets telecommunications equipment standards, some of which have been adopted as national standards using ANSI-approved procedures, and some of which have been adopted as international standards through ISO and CCITT.

15. The T1 Committee was conceived in 1983 in response to FCC concerns about preserving the integrity of nationwide telecommunications in the wake of the impending Bell System divestiture. T1 was established and operates as an independent public committee outside the organizational structure of ECSA. The major part of T1's activities relate to standards for the interconnection and inter-operability of networks at interfaces where independent service providers, or customer-provided equipment and an exchange carrier, meet. For example, T1 studies and establishes interconnection and inter-operability standards at the exchange carrier/CPE interface, the exchange/inter-exchange interface, and the exchange

service/information service interface. Another important function of T1 is the setting of standards for end-to-end performance of the network. Areas of study within T1 include switching, signalling, transmission, performance, operations, administration and maintenance. As of December 31, 1990, T1 had approved 61 American National Standards, including standards relating to all of the topics identified in the preceding sentence.

16. Membership in T1 is open to all, foreign or domestic, who have a direct and material interest in its work or may be impacted by an American National Standard originating in T1. As of October 31, 1990, 48% of T1's total voting membership of 88 were manufacturers and vendors (and 12% of the total membership consisted of foreign-headquartered manufacturers and vendors), 20% of the members were local exchange carriers, 19% were users and general interest (6% foreign), and 13% were interexchange carriers and resellers (5% foreign).* Together, the RBOCs and Bellcore constitute only 9% of the voting members. T1 meetings are announced in advance, held in open public session, and documented with agendas, attendance records and minutes. Substantive decisions are made by formal vote, usually letter

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* In addition to the 88 voting members of T1, there were also 97 "observers" as of October 31, 1990. Any organization or individual may be an observer. Observers are advised of Committee activities, and may attend meetings and submit comments, but have no vote.